

ABSTRACT OF THE DISCLOSURE

An enhanced volume phase diffraction grating provides high dispersion, uniformly high diffraction efficiency and equal diffraction efficiencies for all polarizations across a wide range of wavelengths. In preferred embodiments, the  
5 thickness of the volume phase material and the modulation of its refractive index are jointly established to provide equalization of diffraction efficiencies for all polarizations over a wide range of wavelengths. The equalization occurs where the S and P diffraction efficiencies are both at a maximum.